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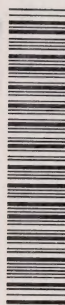
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# Apprenticeship in Manufacturing

*Prepared by the Information Branch  
for the Vocational Training Branch*

Department of Labour • Canada





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# APPRENTICESHIP IN MANUFACTURING

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A Look at  
Current Practices  
in a Selected Number of  
Canadian Companies

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Prepared by the Information Branch  
for the Vocational Training Branch

DEPARTMENT OF LABOUR - CANADA

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## FOREWORD

Following the publication of two bulletins, dealing with apprenticeship programs in Quebec and Alberta, the Department of Labour assembled material on a number of apprenticeship plans in various branches of Canadian manufacturing. This third bulletin, based on this material, is designed to provide employers of skilled labour with a guide which they can use to help establish formal apprenticeship programs in their plants.

The author of the first two bulletins, a staff writer from the Department's Information Branch, was in 1958 assigned the task of visiting a selected group of firms in various parts of Canada to get the story at first hand. More than 40 plants ranging in size from a machine shop with 15 employees to industrial giants with 12,000 employees were visited or supplied information. The firms interviewed do not represent a typical cross-section of Canadian manufacturing but they are all firms which have an active interest in developing sound training programs.

Training needs vary from plant to plant and from one part of the country to another. In view of this no attempt is made in this bulletin to offer any cut and dried solutions to training problems. Rather, the basic principles and features of apprenticeship are presented. The extent to which these are being practised is discussed and some examples are given of how the industries interviewed are meeting problems related to the development of skilled manpower.



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## INTRODUCTION

The number of formal apprenticeship programs in operation in Canada has been gradually increasing during the post war years, particularly in the construction and automotive repair trades.

The rate of growth has not been as rapid in the manufacturing industries. Attempts to meet skilled manpower needs have included less formal types of training and the immigration of trained workers. On occasions these steps have not been sufficient and shortages of skilled manpower have occurred in many of the trades so vital to industry generally, such as machinists, tool and die makers, industrial electricians, millwrights, moulders, shipwrights, pipefitters, heavy machinery mechanics, and others.

In April, 1956, the Economics and Research Branch of the Department of Labour, carried out a survey covering trades training in 7,360 establishments in four industries—mining; manufacturing; transportation and communication; and public utilities. It showed that only 2,024 or 28 per cent of these establishments had organized trades training programs. While advance information from a similar survey in 1959 indicates some increase it is clear that only a minority of companies are engaged in organized training.

The majority of the companies interviewed in preparing material for this bulletin had some form of organized apprenticeship training.<sup>1</sup> This involved a systematic program designed to teach a skilled trade on the basis of a schedule of practical experience and related technical instruction, over a minimum of 4,000 hours of reasonably continuous employment. The apprenticeship terms in the various trades in the firms interviewed ranged from two years, which is the equivalent of 4,000 hours, up to 5½ years.

Apprenticeship is sometimes confused with short-term training of machine operators and semi-skilled workers. In these cases the courses are seldom more than a few weeks or months in duration. The word "apprenticeship" has also been used to describe learner or improver training programs, by which a worker may reach the status of journeyman over a long period of time, usually much in excess of the formal apprenticeship term for the same trade. With a few exceptions, this type of training is not well organized, and consists of unsystematic training on the job, occasionally combined with night courses or correspondence courses which are taken on a voluntary basis.

When skilled tradesmen have not followed a systematic program as provided in apprenticeship training there is usually less likelihood of their acquiring a thorough competence in all phases of the trade, particularly the theoretical aspects of it. As a result what may be produced is a specialist, rather than a highly-skilled craftsman. This is not to say that there are not a number of first-class journeymen who, because of natural ability and hard spare-time study, have learned their trade well by this informal method. It is merely stated to emphasize the almost unanimous opinion of the officials of the companies surveyed that apprenticeship, which combines scheduled training on the job with related theoretical training in the classroom is a method of training which ensures competence in a skilled trade.

<sup>1</sup> See Appendix A for an industrial breakdown of the companies, the number of apprentices in training, and the trades covered.



This attitude indicates an awareness on the part of some manufacturing establishments of the value of apprenticeship programs in producing and maintaining an adequate supply of skilled manpower.

The companies cited two main benefits to be derived from operating formal training programs. First, there is always an adequate supply of skilled labour to meet the operating needs of the firms, and second, a training program provides a reservoir of journeymen from which they can choose future key men for their industry. A number of companies felt a measure of responsibility for providing training opportunities for the youth of their communities and of Canada, and for contributing their share to this country's general pool of skilled labour.

The following statements illustrate this thinking: "We like to produce journeymen capable of advancing to key positions, not necessarily in our own plant, but in industry generally." (Company with 15 employees and training four apprentices.)

"The company does not undertake to retain graduate apprentices in its employ as there may be no openings available for journeymen at the time of completion of apprenticeship. Such boys are advised to 'journey' as the name journeyman suggests. We think it is desirable to provide a means for local boys to learn trades." (Company with 2,000 employees, training 14 apprentices.)

"After completing training, the new journeymen are encouraged to work elsewhere for a few years in order to broaden their experience." (Company with 30 employees and training five to six apprentices.)

"We feel management has a duty and an obligation to offer training opportunities to interested Canadian Youth." (Plant employing 58 people and training four apprentices.)

However, there is another side of the picture as seen in the comments of one large company which has a formal apprenticeship program and has had as many as 120 apprentices in training at one time. The company issues a certificate which is widely recognized in industry as the mark of a competent journeyman, and subsequently loses about one-third of its graduates. A company official made this statement on the problem:

"We feel it is rather unfair that our first-class training program should be used as a supplier of skilled tradesmen to industry at large to that extent. The company recognizes a certain amount of obligation to contribute to the country's pool of skilled labour and is prepared to do its share, but feels that with so many companies not doing any training, it is contributing more than its share at present. This burden would be considerably lessened if every company in Canada which uses skilled trades could be persuaded to do its fair share of training."

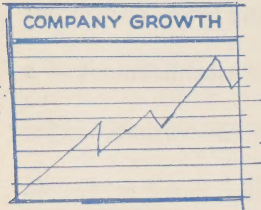
In spite of the incessant loss of journeymen, this company is one of the strongest proponents of apprenticeship in Canada today, mainly because company officials recognize the importance of trades training, not only to their own plant, but to the nation as a whole. They, and the officials of the other companies which are training apprentices, can see that this country's skilled labour force must be kept up to strength, and that training must be geared to meet the immediate needs of an expanding economy, as well as the even greater demands which will arise in the future.

It is to be hoped that more companies will follow suit and look to Canada's future when planning today, and that they will find in this bulletin the necessary information and encouragement to help them plan and put into operation enlightened apprenticeship programs.



## SECTION I

# Planning and Administering Apprenticeship



Formal apprenticeship is a long-term program of education which necessitates careful planning and administration if it is to achieve its primary goal, that of producing a continuous supply of skilled tradesmen to meet the present and future requirements of industry. It embodies certain basic features which are found, in whole or in part, in effective apprenticeship training programs existing in Canada today.

These features of apprenticeship are:

1. A schedule of work processes based on an analysis of each trade
2. Provision for related technical class instruction
3. Provision for trade tests and examinations
4. An agreed period of apprenticeship
5. A scale of wages related to that of journeymen which provides for periodic increases
6. An agreement or indenture in written form which defines the responsibilities of the contracting parties
7. A ratio of apprentices to journeymen
8. Adequate supervision and records
9. Joint representation of employers and organized labour on all boards and committees

This is the framework upon which Canadian apprenticeship programs have been built. The policies and needs of companies, labour-management agreements, and similar factors result in numerous variations in training methods within this framework. However, all training programs have basic similarities and all are designed to achieve the same end.

When consideration is being given to the establishment of an apprenticeship program, it should be kept in mind that the success or failure of such a program depends largely upon the co-operation of labour and management and on their attitudes toward training. Apprenticeship needs to be defined and its purposes understood. It is not a form of cheap labour or servitude. It is a schedule of training which, like the curriculum in any institutions of higher learning, follows a definite course of study. Apprenticeship is an important part of Canadian education, and its graduates are contributing greatly to the economic growth of this country by providing skills, competence and leadership to the industrial community.

### The Ratio System

The number of apprentices entering each trade is controlled by what is known as the *ratio system*. It establishes the number of apprentices a company may employ in relation to the number of journeymen in the shop, and has two main purposes—to guarantee that apprentices will receive proper supervision and

training, and to provide an adequate number of journeymen to meet future requirements.

The survey showed that the ratio system is often covered by union agreement and that the ratio agreed upon by labour and management is invariably larger than the number of apprentices currently employed, indicating a co-operative attitude toward possible future expansion of training facilities.

Every industry with formal apprenticeship, and even those plants with less formal training methods, exercised some form of control over the number of trainees, although there was a wide variety in the ratios, ranging from one apprentice to eight journeymen to 1:20.

Several factors were reported as having a bearing on the establishment of a suitable ratio, such as:

- (a) The number of journeymen currently employed in the various trades in the plant.
- (b) The average number of skilled workers hired annually, based on figures for the past few years.
- (c) Future annual requirements in relation to the expected growth of the company.
- (d) Average annual loss of skilled labour through resignations, promotions, retirements and deaths.

The ratios control the magnitude of the apprenticeship program and when attempting to arrive at a suitable figure, it is well to remember that the basic objective of training is to produce a continuous supply of journeymen, sufficient to fill all reasonable long-term needs.

## The Apprenticeship Contract



The apprenticeship contract or indenture is an important part of every formal apprenticeship program. It is designed to clearly define the responsibilities and obligations of the apprentice and the employer.

Most indentures state the term of apprenticeship, the major processes in which the apprentice is to receive instruction and experience, the scale of wages to be paid during his training period, number of hours of school instruction the apprentice must attend and various other features related to good conduct, diligence and general

working conditions.

Each indenture includes a probationary period, during which the employer may terminate the contract if the conditions are not met by the apprentice. Although the probationary period differs, it is generally for the first six months. This is the case under the terms of a large company's indenture which states that an apprentice can be suspended and the indenture cancelled at any time for any of the following reasons (a) inability to learn (b) unreliability (c) unsatisfactory work (d) lack of interest in work or related education (e) insubordination (f) failure to attend classes of related instruction.

The indenture also offers protection to the apprentice. It outlines what he can expect to receive from the employer in the way of training and working conditions, thus guaranteeing that there will be reasonably rigid adherence to the principles and purposes of apprenticeship.



Those companies interviewed which had apprenticeship plans use a fairly standard indenture which is signed by the apprentice, parents or guardian and the company.<sup>2</sup>

Labour and management often work together outside the bounds of the indenture to ensure the apprentice of the "reasonably continuous training" offered in the apprenticeship contract by the employer.

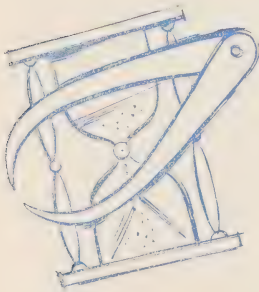
One company official stated that "Both the company and the union feel that it is important for a boy to continue his training. Lay-offs break the continuity of training and a boy may lose interest and not return if laid off even for a short period. He also may forget much of what he has learned during a lay-off of some duration and have to repeat portions of his training. Therefore, it is the prevailing policy never to lay off apprentices. Of course, in the event of a plant shut-down, apprentices would suffer along with all the employees".

A small company with 250 employees has a supplementary agreement with the union which states: "In the event of there being short time involving layoffs in a department, the apprentice can, at the discretion of the company, continue another phase of his training in another department". This agreement, officials said, virtually eliminates the layoffs of apprentices.

However, in many companies, apprentices have to take their share of lay-offs during slack periods along with other employees. The danger in this practice, one official explained, is that the apprentice may obtain other employment and may not return to apprenticeship when company conditions improve.

Industry in one community has an understanding regarding apprentices whereby an apprentice may occasionally be moved from a plant on short time to another company on full time, thus causing little or no interruption of the apprentice's training and eliminating lay-offs almost entirely. Of this plan, one company official said, "We are all striving to meet the same objective—to produce properly-trained skilled tradesmen".

### The Apprenticeship Term



Every long-term educational program has a timetable. It is pre-determined what subjects are necessary for the attainment of full competence and a reasonable period of time is set aside so the student may acquire this knowledge. After a student has reached this stage, he is graduated and begins to put into practice the theory taught in the classroom.

Apprenticeship, although it differs slightly in this last respect since it combines both practical work and theory to a greater extent than many other forms of education, follows the same pattern as any formal educational program. A trade is analysed, work experiences are grouped, and a definite period of time or term is set aside during which the apprentice is expected to master the skills of a trade.

Terms differ from trade to trade, and in some trades, from firm to firm and from one part of the country to the other. The needs of an industry often dictate the schedule of training and the emphasis which is placed on certain subjects.

A skilled trade for purposes of the Federal-Provincial Apprenticeship Agreements is one in which training is required over 4,000 hours or more of reasonably continuous employment.

<sup>2</sup> See Appendix B for examples of standard indentures.

In practice, training may cover as many as five-and-a-half years and involves a system of moving the apprentice from job to job to ensure adequate training in all aspects of his trade. A definite period is set aside for each phase of the work during which the apprentice concentrates on mastering an operation, a machine or group of skills.

In most of the manufacturing trades, an apprentice is considered to be competent upon completion of a training term of 8,000 hours—approximately four years. Other trades take anywhere from two to five-and-a-half years to complete. There is a trend toward placing more emphasis on the competence of an apprentice, rather than on the number of hours he spends learning his trade.

The length of apprenticeship in a number of trades in some provinces is determined by provincial governments when the trade is designated and/or by company-provincial agreement when the company employing the apprentices is registered under a provincial apprenticeship scheme.

A good example of this situation is seen in the case of a British Columbia firm, which has a highly-organized apprenticeship program registered with the province. The terms of apprenticeship are of the following lengths: three years for painters; four years for joiners, shipwrights, pipefitters, platers and boiler-makers; and five years for sheet metal workers, machinist-engine fitters, pattern-makers, loftsmen, draftsmen and electricians.

A small Ontario company trains its toolmaker apprentices for four years. Stating the firm's opinion, an official said, "Four years is generally accepted throughout the trade as the minimum time necessary for the average apprentice to learn all the necessary skills and acquire the related theoretical knowledge. While at the end of the four years an apprentice may have acquired all the necessary skills and knowledge, he still requires a few years of experience in the trade to become a master craftsman."

The successful candidate for apprenticeship occasionally receives special credits for previous training or experience received in other industries or with other firms and his term is shortened proportionately. In almost every case where credits are given, the apprentice must prove his ability either through a written test or by practical work in the shop or a combination of both, during a probationary period. Each case of previous experience is judged on its own merits. Some firms ask the apprentice to write a school test to reveal the extent of his theoretical training, and then records from his former company and his performance in the shop are studied before deciding on whether credits will be awarded.

Rather than following the usual procedure of shortening the apprentice's term of training when his previous experience is proven, one company accelerates the apprentice to more advanced work, allowing him to spend more time on some of the complex aspects of his trade. Another company compensates the boy by giving him higher wages.

Several companies do not give credits for previous training. They contend that each company has different needs in trade skills which are reflected in on-the-job training, thus reducing the possibility that an apprentice can move from plant to plant with ease without losing the time spent on the previous job. One company has a flexible system of advancement which gears the apprentice's progress to his ability to learn and officials of this firm feel the system allows the boy with extra knowledge and skills gained at another company to move on to the next stage of his training at a faster rate.



## Apprentice Wages



Formal apprenticeship calls for a scale of wages related to that of journeymen in the same trade, which allows for increases as the apprentice progresses. Wages for apprentices may be established by (a) agreement between the province and the company when the trade is one which is controlled by regulations under provincial apprenticeship acts; (b) union agreement; (c) the employer, when labour is not organized.

Wage scales are usually included in the indenture and give an incentive to the apprentice to work hard at completing the various phases of his training. They may be expressed in terms of percentages of the journeymen's wages or in dollars and cents.

Many factors may influence the setting of apprenticeship wages. An attempt is made to arrive at a scale which will be high enough to keep the apprentice interested in his training and to deter him from transferring to a more lucrative job which has little future, yet low enough to conform with the principle that the apprentice is receiving the benefits of learning a highly-skilled trade, and that his wages should increase over the term in relation to his mastery of the various skills and operations connected with that trade. Apprenticeship is unique among educational programs in that it offers a wage to its students.

The principle of periodic wage increases for apprentices is widely accepted throughout industry. The increases are regular—every six months, sometimes every three months, occasionally annually—until a maximum percentage is reached just prior to the completion of the apprenticeship. In some cases they are automatic, but often there is a clause in the agreement requiring the apprentice to make satisfactory progress in both practical and related training before he advances to the next level.

Special salary increases are sometimes offered to those who learn faster, thus allowing the boy to progress as quickly as he is able to master the different phases of his training. Often bonuses of cash and free tools are given upon successful completion of apprenticeship. This extra incentive may run from \$150 to \$250 and sometimes covers the cost of text books used for classroom subjects. One company spreads its tool bonus over the first three years of training, thus reducing the financial burden on the young apprentices.

In the industries surveyed, it is the common practice for an apprentice to start at a wage which is a certain percentage of the prevailing journeyman's rate in the same trade. Starting wages range from 25 to 64 per cent and progress to a maximum of 90 per cent during the last six-month period prior to the completion of apprenticeship.

The following example is the system used in a British Columbia company which is registered with provincial apprenticeship authorities who set the rates by law:

First six months.....	25 per cent journeyman's wage
Second six-month period.....	30 per cent
Third six-month period.....	35 per cent
Fourth six-month period.....	40 per cent
Fifth six-month period.....	50 per cent
Sixth six-month period.....	60 per cent

Seventh six-month period.....	70 per cent
Eighth six-month period.....	85 per cent

There were numerous variations in the wage scales set by the various companies, indicating that plant conditions, community living costs, union agreements, and other related matters determine the wage structure.

## Apprenticeship Committees



The apprenticeship committee, in plants where such bodies are used, is an integral part of a formal apprenticeship program. It brings together management and labour and sometimes includes a representative from the local educational authority which might provide the related classroom training. It is the committee's responsibility to see that the training is effectively carried out and to stimulate co-operation and interest in training.

The committee in a Manitoba company consists of superintendents, trade foremen and two representatives from each craft union. It is headed by the superintendent of the research department and meets every month. Its duties are to discuss the whole apprenticeship plan and to review individual progress; to recommend, encourage and reprimand; and to decide who should repeat their work, be transferred or discharged.

Other companies with apprenticeship committees follow the same pattern, although the number of members varies extensively. The duties of the committees consist, generally, of hearing and adjusting matters regarding apprenticeship agreements, recommending disciplinary action when necessary and giving technical advice on the training program.

A number of companies which have training plans registered with a province maintain a management committee on apprenticeship consisting of training personnel from management and shop foremen. In some instances, the unions have established apprenticeship committees which act in an advisory capacity.

Sometimes management sets the standards and guides apprenticeship training without referring to labour or other interested parties. Of course, the policies of the companies concerned would determine this factor. However, it can be said that a successful apprenticeship program requires the support of everyone who comes into contact with it, and for this reason joint apprenticeship committees offer the opportunity to remove misconceptions and to develop healthy attitudes toward training.



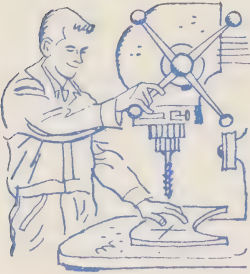
## SECTION II

### Training Methods

Apprenticeship training consists of two distinct, but closely associated parts—that received on the job and that taught in the classroom.<sup>3</sup> The major portion of the training is given on the job, while classroom training provides related trade theory, and such related mathematics and science as are considered necessary to a thorough understanding of a trade.

Both parts of apprenticeship are carefully planned and a reasonably rigid timetable of work experiences and classroom training is drawn up for each trade.<sup>4</sup>

#### On-The-Job



In on-the-job training, the apprentice is rotated on either a systematic basis with a definite number of hours on each phase of the work or as the demands of production and work dictate. This rotation may occur every six months in one plant, every three weeks in another or every week in a third company. However, all companies make sure that the apprentice is well versed in the techniques and methods used in that particular part of his trade before they allow him to move on. Some companies require a trainee to pass a test based on each phase of

the work before he progresses to the next stage. This practice is usual in larger firms.

Many small plants and a few large companies rotate apprentices according to the dictates of the work and not in a regular manner. In such cases, the companies stress that care is taken to guarantee that the apprentice receives training in all aspects of the trade. The apprentice is also given work experiences in trades related to his own, sometimes on a regular basis, other times as the work in the plant permits.

It was thought generally that some production had to be sacrificed to ensure proper on-the-job training. Most companies regarded this loss as an investment that would be returned later with dividends in the form of highly-skilled tradesmen who would produce profits for the employer. Only two of the companies which commented on the cost of apprenticeship expressed doubt over whether the training pays for itself in production. One company thought apprenticeship was costly.

In assessing the cost of apprenticeship the management of a plant with 12,000 workers expressed the opinion that the apprentice costs the company money from a production point of view, but that the company considered the program necessary to maintain an adequate supply of skilled tradesmen. To attain this objective, the firm was prepared to invest time and money.

A west coast company with 1,000 employees stated, "The emphasis is on training and in order to ensure proper training, production must be sacrificed. This is costly to the firm. However, after the third year, while still undergoing

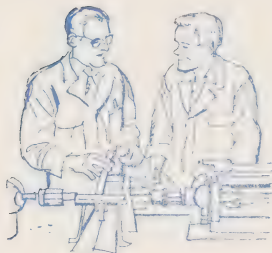
<sup>3</sup> See Appendix "C" for examples of training methods.

<sup>4</sup> See Appendix "D" for example of Schedule.

training, the apprentice has usually acquired sufficient knowledge and skill to contribute productively".

The majority opinion was that by the end of the second or third year, an apprentice was contributing appreciably to production. Three or four firms thought there was little return before the end of the fourth year or near completion of the training period. Some companies said that an apprentice begins to pay his way right from the start provided there is careful planning and close supervision.

### Supervision



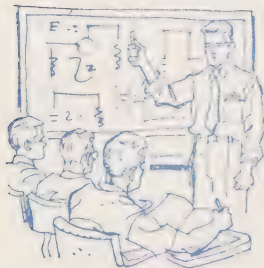
Proper supervision is another of the important features of formal apprenticeship. In all the programs studied, every apprentice is closely supervised and his progress is usually followed by a written record. A mentor, usually a journeyman or foreman, is responsible for the apprentices in his shop. His records or verbal reports are received by the superintendent, who in turn reports to the personnel office or person in charge of training in the plant. Some foremen report directly to the training director or to the personnel office.

There are many different approaches to supervision. In some small companies, the manager, owner, or president personally interviews the apprentices to determine their progress. Written records are frequently used and have the advantages of being permanent and of allowing company officials to periodically review the trainee's progress without relying on memory. Records do not need to be elaborate.<sup>5</sup>

The following situation exists in a small company. The trainee may be moved from job-to-job on an informal basis according to the needs of the shop. He is supervised by the foreman. The president of the company takes a personal interest in the training progress of every boy and makes sure he learns everything that is necessary to acquire a thorough knowledge of the trade. There are no written records, but since the shop is small, it is not too difficult to assess the apprentice's progress.

There are, of course, numerous small companies which follow the principles of formal apprenticeship and keep permanent records of their apprentices. When companies are registered with their respective provincial governments, forms are provided for the purpose of keeping records, and periodic reports are made to the provincial authorities.

### Related Training



Apprenticeship in any trade calls for the provision of technical instruction, related instruction in mathematics and science, trade tests and examinations. Throughout the industries studied, related classroom training formed an important and integral part of formal apprenticeship as well as other trades training programs.

Technical and related instruction was given in municipal schools, in technical or vocational institutes established by provincial governments, in classes in plant schools operated by the companies involved, or, as in a number of cases, through the use of correspondence courses.

<sup>5</sup> See Appendix "E" for example of progress cards.



The hours spent in class are often counted as part of the term of apprenticeship, but in many cases, related classroom training is considered to be over and above the time spent in the shop.

Most of the apprenticeship plans call for a period of related classroom training ranging from four to eight hours a week. The four-year apprenticeship courses being carried on in the industries studied require that the apprentice attend a total of 200 hours of classes each year.

The majority of the companies prefer their apprentices to attend night school, but the practice of allowing them to take their courses during the day at a local school is growing. Much is dependent on the facilities available.

Apprentices attending day classes are occasionally paid regular wages, depending on company policy. Some companies feel the payment of wages encourages the apprentice to keep up regular attendance. A few companies pay their apprentices attending night classes to give added incentive. Since classroom training is a vital part of apprenticeship, the regular practice is to grant a certificate of competency only to those apprentices who have obtained pass marks in the various related subjects prescribed.

Subjects taught in the classroom, while differing from trade to trade, generally include mathematics, science, physics, blueprint reading and drawing, and related trade subjects. Sometimes English, referred to as the tool of communication, is taught as one of the general subjects.

The principal purpose behind classroom studies is to supply the apprentice with the theory of his trade, but they also help to improve his general education. In essence, the apprentice receives that knowledge which he is unable to obtain in the shop, where practical work takes precedence. Commenting on related education, one company official said: "Related training is considered essential because a theoretical knowledge of the trade is necessary to produce a top craftsman. He must know 'why' as well as 'how' and it is most difficult to teach theory in the shop."

At the end of an apprentice's term, almost every company issues either its own certificate, a provincial certificate, if the firm was registered with the province, or both, attesting the apprentice's proficiency in his trade.

## SECTION III

### Choosing an Apprentice



How does industry choose its apprentices and what attributes does an employer seek in a youth who wants to learn a trade?

Almost every firm with a formal training program carefully screens its applicants for training by a series of written or verbal examinations or a combination of both. In these tests, an attempt is made to assess the applicant's aptitude, desire to learn, interest in the trade, potential ability, personality, honesty and other traits. Usually, an applicant is required to pass a medical

examination.

Small companies invariably screen their applicants through personal interviews, perhaps with the owner of the company, the manager, or the personnel officer if the firm employs such an individual. The larger companies have more formal written tests, supplemented by the interview technique. Each seeks youth of high calibre and potential and each usually places heavy emphasis on the boy's scholastic standing.

A British Columbia firm which employs 3,200 people selects its apprentices in four phases:

1. Pre-application interview with the supervisor of apprenticeship training.
2. School reports.
3. Personnel tests, results of which are discussed with the applicant by a company psychologist.
4. Supervisor of apprenticeship training or an officer introduces the applicant to the superintendent of the trade of the boy's choice and assists the trade superintendent in the final selection.

Some large companies conduct interviews in high, technical and vocational schools on a province-wide basis. The top applicants from each school, in one case the first five, are selected as possible candidates for further testing, interviewing and screening. Physical examinations and personnel tests are given before the final selection is made.

### Company Preferences

Each company sets certain standards which must be met before an apprentice is admitted to a trade. These requirements extend into many areas, particularly those of education and age. Preference is sometimes given to the applicant with higher marks in basic subjects such as mathematics, English and science; to the graduate of technical, vocational or high school, depending upon the opinions of the company concerned; to the sons of employees; and to youths in the community where the industry operates.

Some companies demand graduation diplomas from high, technical, or vocational school. Others set their limits as low as grade 9. A few companies do not



set any level of education, but seek to uncover, through interviews, the youth's potential and his desire to learn. Generally, the industries surveyed favour an apprentice who had completed any of the grades from 10 to 12, or higher, and who was able to pass a series of aptitude and other tests.

### Age is a Factor

Age is a factor which employers usually consider when studying an application for apprenticeship. An apprentice for purposes of the federal-provincial apprenticeship agreements is described as "A person at least 16 years of age . . ."

In one province, British Columbia, the minimum age limit is 15, although in companies interviewed for the purposes of this booklet, the age limits range anywhere from 16 to 26.

Although no maximum age limits are set in the officially accepted definition of apprenticeship, preference is generally given to young applicants. There is a trend, however, towards the removal of maximum age limits.

This latter thinking is reflected in the following statements:

"There are no age limits, either maximum or minimum, providing the applicant is past school leaving age."

"We do not have age limits. This enables helpers who have the desire to become journeymen to switch into apprenticeship."

While one company did not set a maximum age limit, it did express the thinking of many of the industries with regard to the older apprentice. An official of the firm stated, "It is difficult to get suitable persons at a higher age because they are usually reluctant to start at apprentice wages as they can make more as a labourer or helper".

Another company carried this idea further by saying, "We consider the ideal age for commencing apprenticeship to be between 16 and 18 years. This assures obtaining boys while they are still in the habit of studying and their whole attitude is receptive to mental development. It also gives reasonable assurance of the apprentice finishing his training before taking on family responsibilities and the upkeep of separate living accommodations. On occasion we might consider youths up to 20 years of age, but do not recommend anything beyond this point."

Youth was thought to be necessary for the long training periods which are a characteristic of apprenticeship. Supporting this, a company said, "We prefer apprentices between 18 and 25. He should be at an age commensurate with the necessity for a relatively long training period."

### Supply of Apprentices

Based on information received from the companies surveyed, it would appear that there is a more-than-adequate supply of applicants who are able to meet the requirements for entry into apprenticeship. Many firms have lengthy waiting lists and the remainder of the companies which expressed opinions on the matter claimed they had no difficulty obtaining qualified apprentices to fill their needs.

Various reasons were cited for this over-supply. Many employers thought their carefully-planned selection program guaranteed an adequate supply of apprentices. One large company



stated, "Under our system of selection and interview from schools all over the province, plus high starting wage rates, no difficulty has been encountered in finding plenty of qualified boys from which to choose".

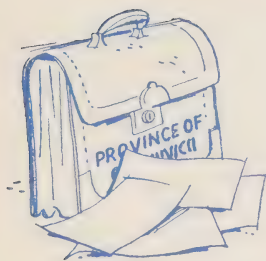
Even companies with comparatively low starting rates for apprentices claimed to have no great difficulty in obtaining suitable applicants. Perhaps the reason for this might be summed up in the thinking of one apprentice who expressed the opinion that the value to the apprentice of the excellent training he received more than offset a lower wage scale during the early years of training.

A company with 250 employees without a province-wide selection system said that up to the present time, there had been an adequate supply of good candidates, but said that this was because not enough companies offer apprenticeships. A company official added, "If every company using skilled workers had an apprenticeship program there would be more competition for the qualified boys."



## SECTION IV

### Provincial Assistance to Employers



There exists in most provinces, legislation which is designed to assist and promote the establishment of apprenticeship programs in industry.

As far as the manufacturing trades are concerned, the provincial government departments responsible for apprenticeship training can suggest course outlines and schedules of training and offer assistance in setting up programs according to the basic principles outlined in this bulletin.<sup>6</sup>

Flexibility is emphasized throughout Canada in apprenticeship training to provide a sound training program which can be adjusted to meet the particular needs of any firm or employer. The provincial authorities may offer free technical classes, correspondence courses and other aids which vary from province to province according to the situations encountered, and the policies of the provincial governments. In all provinces apprenticeship legislation is administered by the provincial department of labour, and in most provinces the department of education co-operates with industry in providing classroom training in day and evening courses in high, technical and vocational schools.<sup>7</sup>

Under the Federal-Provincial Apprenticeship Agreements, the provinces receive financial assistance from the federal government, to aid them in furthering apprenticeship.

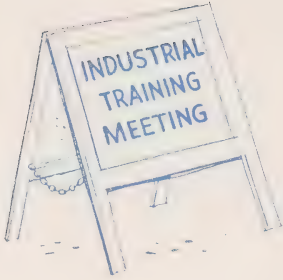
This Apprenticeship Agreement provides that the Federal Government will share with those provinces which sign agreements the total costs of salaries of instructors; of materials, supplies and hand tools; the purchase of equipment; rental of premises; weekly living allowances and travelling expenses to trainees in full-time classes; purchase of correspondence course; per diem allowances to members of trade committees; salaries and travelling expenses of field supervisors; and operating costs of special apprentice training centres. In addition, financial assistance is provided under other agreements with the provinces to give assistance for building, equipping and operating vocational and technical schools and institutes.

<sup>6</sup> See Appendix F for names and addresses of PROVINCIAL DIRECTORS OF APPRENTICESHIP.

<sup>7</sup> Bulletins one and two in this series outline more fully the details of assistance offered industry by the provincial governments.

## SECTION V

### Industry Helps Itself



In the final analysis, the success of industrial apprenticeship in Canada depends entirely on the extent of industry's participation, regardless of the assistance which governments may offer. Industry itself has to recognize the growing need for apprenticeship training and it is only in this way that any significant strides can be made in producing an adequate supply of highly skilled and competent journeymen and technicians. Group action rather than the efforts of individual companies has proven to be an effective approach to an efficient training program.

#### Promotes Apprenticeship

One organization which has long seen the need for training and which, since its inception has incessantly promoted apprenticeship among its members and industry generally, is the Ontario Industrial Education Council, composed of representatives from industry and education.

The OIEC was organized in 1948 with one purpose in mind—to bring industry and schools closer together to solve common problems. Industrial apprenticeship was one of those problems.

A Provincial Chapter Apprenticeship Committee was formed in 1949 and began gathering information on industrial apprenticeship programs. Using their survey data as a basis, the committee formulated standard training plans for various industrial trades. This framework, upon which an industry could build an apprenticeship program to suit its particular needs, was called "The Package Plan". The Ontario Branch of the Canadian Manufacturers' Association co-operated with the OIEC by producing and distributing "The Package Plan".

The next step in the development of the OIEC objectives came in 1954 when the Industrial Apprenticeship Foundation was formed to promote the use of "The Package Plan" to foster the growth and development of apprenticeship in the manufacturing trades, leading to the more widespread employment of indentured apprentices. It also sought the achievement of a common degree of proficiency by the adoption of standard course outlines based on minimum requirements, the interchange of ideas and the sharing of experience among employers holding similar views in regard to apprenticeship, on an industrial grouping or community basis.

The objectives of the Apprenticeship Foundations are:

1. To encourage and assist manufacturers to establish apprentice training in their plants;
2. To provide, in collaboration with the Ontario Industrial Education Council or other bodies, courses of shop and related training for apprentices in the factory trades;



3. To establish and maintain acceptable standards of proficiency to be met by apprentices trained under the Foundation's program;
4. To provide a means of registering apprentices being trained in accordance with the standards established by the Foundation;
5. To collect, assemble in useful form and distribute to its members and appropriate Government agencies, statistical data relating to industrial apprenticeship training.

## SECTION VI

### General Conclusions

It is evident that many firms are intensely interested in apprenticeship, some to the point of developing elaborate training schemes which are outstanding examples of careful planning. It is still more evident from the statistics used in the introduction that only a small percentage of Canadian industries have apprenticeship training programs.

#### Need More Tradesmen



The opinion of industrialists is that Canada will need more and more skilled tradesmen in the future and that trades are changing in many ways, requiring more theoretical knowledge as technology advances and automation comes into more general use. It is also their opinion that formal apprenticeship is one of the best ways of producing an adequate pool of skilled tradesmen, versed in the theory and practical phases of their trades, who can cope with the complexities which are arising, and will continue to arise in industry as technology advances.

Company after company, even those without formal apprenticeship, feel that apprenticeship is a sound method of bringing a youth to journeyman competency in a reasonable length of time.

The views of one large company were: "The experience of this company over half a century has proven that apprenticeship is the only method which guarantees journeyman competence. A properly organized program combining practical work and related theoretical training is the only certain method of ensuring that a skilled worker learns everything he should know in the shortest possible time".

#### Uniform Standards



Another firm was convinced that industrial apprenticeship training methods can be improved through a study of each trade, and the development of nation-wide standards of competence.

Steps in this direction have already been taken by the Federal Department of Labour, which began a systematic analysis of Canadian trades on the recommendation made at the First National Conference on Apprenticeship in Trades and Industry, held in Ottawa in 1952.

The analyses reveal what a journeyman should be able to do and what body of information he should master to be competent in his occupation. They serve as a basic inventory of trade requirements and qualifications upon which a course of instruction may be organized. They may form the basis for training programs

in industry and for courses of study in vocational schools and trades institutes. They can also be used to guide foremen giving on-the-job training and assist industry in evaluating experience.

Analyses have been completed in the following trades: Heavy duty repair; welding; bricklaying; carpentry; machinist's; motor vehicle repair—body; motor vehicle repair—mechanical; plastering; plumbing; sheet metal; electrical; and painting and decorating.

Apprenticeship authorities hope that the analyses of apprenticeship trades will ultimately lead to uniform standards of competence, which, in addition to other benefits, will make it easier for a tradesman trained in one province to be accepted as a competent journeyman anywhere in Canada.

A major move toward standardization came in 1959 when the first Inter-provincial Apprenticeship Certificates to be awarded in Canada were presented in eight provinces to successful apprentices in the motor vehicle repair trade. All final-year apprentices in Newfoundland, Nova Scotia, New Brunswick, Ontario, Manitoba, Saskatchewan, Alberta and British Columbia wrote the same examination which was based on the analysis of the motor vehicle repair trade in Canada.



## APPENDIX A

### Training Statistics by Industrial Categories

<i>Manufacturing</i>	<i>No. of Companies</i>	<i>No. of Employees</i>	<i>Formal Plan</i>	<i>Informal Plan</i>	<i>No. of Apprentices</i>
Paper Products.....	5	5,697	4	1	82
Transportation Equipment..	14	39,238	11	3	273
Chemical.....	3	1,197	—	3	—
Electrical.....	3	4,924	1	2	57
Iron and Steel Products.....	16	16,385	12	4	148
<i>Mining</i> .....	4	8,167	3	1	124
<i>Totals</i> .....	45	75,608	31	14	684

More than 50 trades were being taught to apprentices in the 31 plants which were operating formal apprenticeship programs, ranging from one trade for some small and medium-sized firms to over 15 in some of the larger companies.

The trades are listed below. It is quite possible that some have been omitted because of incomplete records and that the only difference between some of the trades in the list is the name. No attempt was made to investigate the teaching content of each trade and to compare it with a similar trade for grouping purposes. Rather, the nomenclature given the trades by the companies concerned was used and it was on this basis that the list was compiled.

*Aircraft mechanics; aircraft engine mechanics; aircraft technicians; armature winders; auto mechanics; blacksmiths; boilermakers; bricklayers; carpenters; copper-smiths and pipefitters; draughtsmen; electricians (industrial and maintenance); electronics technicians; engine assemblers; engine rebuilding mechanics; engineering machinists; engineering technicians; experimental auto specialists; fitters and wiremen; heavy duty mechanics; instrument mechanics; instrument repairers; jig and fixture builders; joiners (ship's carpenters); laboratory technicians; leadburners; loftsmen (templates and layout); machine fitters; machine repairmen; machinists; machinist engine-fitters; millwrights; moulders; oil burner servicemen and engine rebuilders; ordnance machinists; painters; pattern makers (wood and metal); pipefitters (plumbers) (industrial pipefitters); platers; precision instrument mechanics; quality control technicians; riggers and sailmakers; sewing machine repairmen; sheet metal workers; shipwrights; steel plate fitters; structural fitters; sub-assembly mechanics; tinsmiths; tool designers; toolmakers; tool and die makers; tool and die machinists; trim lay and pattern journeymen; welders; wire and cable manufacturing technicians.*

## APPENDIX B

### Contract of Apprenticeship (Example of a Provincial Contract)

**This Contract** of Apprenticeship, made this.....day of.....19.....  
BETWEEN.....of.....  
hereinafter called the EMPLOYER of the First Part, AND.....  
of.....a person born on the.....  
day of.....19.....hereinafter called the APPRENTICE of the second part,

#### Witnesseth:

1. That the Apprentice, in consideration of the undertakings herein contained on the part of the Employer to be performed, does agree:
  - (a) To become an Apprentice to the Employer in the trade of.....  
for.....years, or.....hours actually occupied in the trade, whichever is the greater,  
commencing on the.....day of.....19.....
  - (b) To serve the Employer faithfully, honestly, and diligently and to obey the lawful and reasonable demands and requirements of those duly placed in authority over him;
2. That the Employer, in consideration of the undertakings herein contained on the part of the Apprentice to be performed, agrees:
  - (a) To receive the Apprentice for the aforementioned period and to teach or cause to be taught efficiently the Apprentice in the trade in accordance with the work syllabus set out in the attached Apprenticeship Standards.
  - (b) (i) In accordance with the provisions of the attached standards, to pay the Apprentice not less than the following wage rates for time actually occupied in the trade and for time spent attending day classes in related technical instruction:

1st period.....	6th period.....
2nd period.....	7th period.....
3rd period.....	8th period.....
4th period.....	9th period.....
5th period.....	10th period.....

    - (ii) A period shall be 6 months or 1,000 hours, actually occupied in the trade, whichever is the greater. To be subject to the terms and conditions in the Apprenticeship Standards attached hereto and forming part hereof.
    - (iii) The parties hereto mutually agree that this contract is subject to the terms and conditions in the.....Apprenticeship Standards attached hereto and forming part hereof.

**In Witness Whereof** the parties have hereunto set their hands and seals.

..... (Apprentice)	..... (Employer)
..... (Address)	..... (Authorized Officer)
..... (Chairman)	..... (Secretary)

Approved by the Local.....Advisory Committee

Certified as binding upon the parties hereto this.....day of.....19.....

PROVINCIAL APPRENTICESHIP COMMITTEE

By:.....  
(Director of Apprenticeship)

(To be filled in if Apprentice transfers to another Employer)

With the consent of all the parties to this contract, the services of the Apprentice and the responsibilities of the Employer are hereby transferred to.....  
this.....day of.....19.....

..... (Employer)	..... (New Employer)
..... (Apprentice)	..... (Address)

Approved by the Local.....Advisory Committee  
By.....  
(Chairman).....(Secretary)

Approved by Provincial Apprenticeship Committee this.....day of.....19.....  
By.....  
(Director of Apprenticeship)



## APPENDIX B

### Apprentice Agreement

(Example of that used by Ontario Industrial Education Council)

.....(hereinafter called the "Apprentice")  
having completed to the satisfaction of the.....  
(hereinafter called the "Company"), a trial period of at least three months' service with the  
Company,

The undersigned.....  
residing at.....  
Parent of said Apprentice, who resides at.....  
Guardian and was born on the.....day of.....in the year.....  
agrees that said Apprentice will faithfully serve the Company at its Works  
at.....  
as.....Apprentice  
for a term of.....years or.....hours (as hereinafter specified) commencing  
on.....

1. The aforesaid term shall consist of.....calendar years or.....hours and all lost time shall be made up at the end of each year before the next year of the apprentice course shall commence. There shall be credited to the first year of the course the time which the apprentice shall have already served during the trial period above mentioned.

2. Whenever in its judgment the state of business demands it, the Company may shorten the hours of work or suspend the Apprentice wholly or in part and the making up of time so lost shall be in the discretion of the Company. The Company may at any time terminate this Agreement and discharge the Apprentice for cause.

3. If the number of working hours applicable to the Apprentice, or applicable generally to the Company's employees at the above-named Works, be changed pursuant to any Dominion or Provincial law or regulation, or if in the judgment of the Company the state of business warrants, the number of working hours required for each year may be changed accordingly.

4. The Apprentice shall willingly perform such work in the shop or office as in the judgment of the Company will prepare him efficiently for his future career. He shall also regularly and willingly attend class room exercises or lecture courses and do a reasonable amount of home study work as prescribed by the Company.

5. The Apprentice shall perform his duties with punctuality, diligence, and fidelity, and conform to all rules and regulations prevailing at the above-named Works; he shall not absent himself from work without permission, except in case of sickness, legal holidays, or days on which the above-named Works are closed.

6. The Company agrees that it will cause to be carefully and skillfully taught to the Apprentice, the trade or other branch of the business of the Company to which the Apprentice is hereby indentured and that upon the completion of the full term of apprenticeship to the satisfaction of the Company, it will give the Apprentice a "Certificate of Apprenticeship", as a record of his efficiency and knowledge and his standing in the educational work, and that he has served his time at such trade.

7. The Guardian, at his own expense, will supply the Apprentice with necessary tools, see tool list.

8. The Apprentice shall be paid for each hour of actual service at the prevailing rates of pay (see statement of rates) established by the Company for Apprentices in the trade above-named, which rates of pay shall be not less than that agreed upon for the period of indenture.

9. The final year of the apprentice course, together with the rate of compensation therefor, shall be extended until all of the prescribed educational work is completed in a manner satisfactory to the Company.

10. All wages or other sums earned by the Apprentice shall be paid to and, if required, receipted for by the Apprentice.

.....  
Parent or Guardian

Dated.....

I hereby consent to the provisions of the above agreement and agree to be bound by the same

.....Witness.....Apprentice

## APPENDIX C

### Examples of Training

The following examples illustrate the methods used by a cross-section of industry with regard to on-the-job and related classroom training, outlining the supervision and records provided; the encouragements offered to apprentices; and how private apprenticeship plans differ from those established with assistance from the provincial governments.

The province of British Columbia provides the related training for apprentices of a large firm employing 1,660 workers. Apprentices receive eight hours of classroom training per week for six months during each year of apprenticeship. Because of local school conditions, certain apprentices attend evening courses, while others attend day classes and are paid regular wages. Subjects taught all apprentices are mathematics, science, theory of the trade, shopwork, blueprint reading, and special subjects related to the different trades. Tests are given periodically and the results are sent to the company. The apprentice receives a provincial certificate after he has successfully completed his apprenticeship training.

The apprentices from a British Columbia company employing 3,175 people attend classes for four hours each week at a local school. In apprenticeships where evening classes are not offered, the apprentice is encouraged to use correspondence courses.

The shop supervisor passes reports from the shift bosses, lead hands and journeymen, along to the supervisor of apprenticeship. He also receives a semi-annual report from the night school. This is added to the shop report which he signs and passes along for the signatures of the shop supervisor and the apprentice. This company places more emphasis on day-to-day progress in the shop and at school than what they call "crescendoes of learning that go on prior to tests". The company holds a special graduation dinner and presents each apprentice graduate with a company certificate and a desk set memento containing a mounted miniature of his certificate. In addition the successful trainees are awarded a provincial certificate.

In the same province, another firm requires that its apprentices take evening classes and also correspondence courses. This indicates the importance companies place on trade theory and related training. Apprentices attend classes two evenings per week between September 15 and March 31, and spend an average of eight hours a week studying their correspondence courses. In addition, some classes are held during the day in the plant itself. Apprenticeship training is supervised by journeymen-teachers and the plant supervisors, who report to the training supervisor. A record is kept of each apprentice's progress. Examinations are held regularly on classroom work, while progress reports are received every six months on the practical phases of the work. Senior supervisors give the practical tests. Related classroom training is in addition to apprenticeship terms. A provincial certificate is granted for successful completion.

In Nova Scotia, a firm employing 1,400 workers does not have access to adequate educational facilities and must depend on correspondence courses to

supply its apprentices with the related theory of their trades. Reports on the progress and marks of each apprentice, based on regular examinations, are sent to the company by the institution offering the courses. The company expects its apprentices to study for from four to eight hours every week. Shop work is judged on day-to-day performance by the mentors. A provincial Department of Labour certificate is awarded to the successful apprentices.

There is a slight variation in training methods in a large Manitoba company which has its own school. For the first and second years, in addition to his regular training, the apprentice receives safety training and is encouraged to take the company's first aid course. Each month, the trainees are graded on the basis of accuracy, speed, initiative, attitude and scholastic standing. Members of the apprenticeship committee, the apprentice and his parents receive a copy of this progress report. The apprentice also keeps a shop note book and is graded on content and style. This, the company feels, serves as a good index of progress. All classroom work is given on company time—one day a week for the first two years and half day a week for each consecutive year until the end of his indentureship. School topics are arranged by regular conferences between the shop foremen and class instructors so that they dovetail with current or anticipated shop work as far as possible. Films, film strips, illustrations and tours are used to give the apprentice extensive knowledge of the plant operations. A certificate is granted at the completion of the apprentice's term.

A British Columbia firm with 384 employees has its own school and its apprenticeship program is registered with the province. The apprentice spends four hours a week in the company classroom, where instruction is given by a chief instructor assisted by other qualified plant tutors, personnel who are trained in teaching methods. Apprentice classes are held in the evening from 6 to 10 o'clock. A certificate signed jointly by company and provincial officials is awarded to the apprentice at the completion of his training.

The apprenticeship program of a large Ontario company calls for 8,000 hours of planned work experience plus at least 680 hours of classroom instruction. The latter is given in the company's school two days a week from 4:30 to 6:30, on the apprentice's own time. Classroom work is supplemented by home assignments which vary with the needs of the individual. Periodic examinations are written in each subject. The company's training personnel supervise the apprentices, and apprentice co-ordinators work with supervisors of shop departments to make sure each apprentice receives complete training in all phases of his trade. In every major area of each trade there is a complete planned sequence of job assignments. When an apprentice is ready to move from one type of work to another, he is examined and receives a shop rating. This is reviewed by management and the apprenticeship committee.

Another British Columbia company with 2,000 employees has a system of related training which combines the use of its own school, a government school and correspondence courses. Classes of four-hour's duration are held every two weeks. Certain apprentices, in the trades of auto-mechanics, pipefitting, painting and carpentry, attend related technical classes in Vancouver one month every year. While there, the apprentices receive half pay from the company and a weekly allowance provided by the province.

Training in the plant school is supervised by the training supervisor. Correspondence courses are used for this training and classes are held during working hours. The foreman is responsible for on-the-job training, but the apprenticeship



program is controlled by an apprenticeship committee. The foremen report on apprentices every six months. The apprentice attends the apprenticeship committee meeting when his report is being discussed and he may be given an oral test to see if the written report is a true indication of what the apprentice has learned. At the end of his term, the apprentice graduate receives a provincial certificate.

A small Ontario plant with 30 employees follows a training pattern similar to that of the larger companies. Trades are analysed and work experiences are grouped for instruction purposes. Journeymen and foremen have direct supervision over the apprentice's practical training. The plant owners, themselves qualified journeymen, take a personal interest in each trainee. Theoretical training is provided in evening classes as part of the regular municipal vocational school program. Periodically, each apprentice is called in for a personal interview and an oral test to determine his progress. Also reports are received on his daily activities and achievements, and marks are obtained from the school. These give the owners a full picture of the youth's progress. Complete reports on examinations, classwork, attitude and other factors are sent to the company by school authorities. The firm grants a certificate.

Another Ontario company, with 4,500 employees, has a plan which embodies many of the methods used for apprenticeship training in other companies across Canada. The plant employs a specialist in apprenticeship training. He receives periodic written reports from the shop instructor or foreman concerning on-the-job progress. There is no specific examination in each department, but the progress reports indicate when the apprentice is ready to move on to the next phase of his training.

The trainee attends classes two evenings a week provided by local school authorities. A particular point of interest is that the curriculum is planned co-operatively by industries in the area and school authorities and is designed to meet the specific needs of all apprentices who attend these classes. In addition to the practical work reports, the apprenticeship specialist obtains a resume of school progress. Twice a year, the company sends out a summary of the apprentice's activities to the parents or guardian of the trainee. If the boy is showing signs of failing, attempts are made to determine the cause. Has the boy lost interest? Does he lack ability? Would he do better in another trade? Every apprentice who is successful in passing both the practical and classroom phases of his training receives a company certificate and a photographic reproduction of his certificate in a pocket-sized leather wallet.

Another Ontario company with 2,500 employees grants a certificate which is widely accepted, not only in Canada, but internationally. Complete records of practical and related classroom work are kept on every apprentice. Each apprentice attends the local technical school for one morning, four hours, each week or 800 hours during a four-year period and is paid regular wages while in attendance. The technical school reports to the company's training director. The school provides the technical and related training after consultation with the company as to the course content required.

On the job the apprentices are supervised by the foremen or journeymen. The foremen report to the training director. An apprentice must have competence in every phase of his training, both practical and theoretical, before the company grants a certificate.

The apprentices are given work experiences in trades related to their own where possible, but where this is impractical, they are given the work scheduled. In this way, there is little interruption of production. All changes are reported to the apprenticeship committee, made up of members of management and labour. Progress reports are made out and show whether they are ready to move on to the next phase of learning. There are four possible ratings—excellent, good, fair and poor. These are based on the six following points: accuracy, work completed, initiative, dependability, attitude and co-operation. The journeyman-teacher makes out the record, which must be approved by the foreman before it is sent to the training director, who decides whether the apprentice is ready to move on to the next phase.

The last three examples are from companies which have private apprenticeship programs and which receive assistance from provincial and municipal educational authorities through the provision of school facilities.

## APPENDIX D

The following is the schedule of work assignments for a toolmaker apprentice in a company employing 2,500 workers:

<i>Assignment</i>	<i>No. of Hours</i>
1. Tool and steel crib.....	144
2. Drilling machines.....	144
3. Shapers and slotters.....	252
4. Planers.....	108
5. Lathes.....	756
6. Milling machines.....	360
7. Grinding machines.....	360
8. Boring machines.....	288
9. Heat treating.....	288
10. Metallurgy.....	144
11. Bench and floor work.....	1,656
12. Analyzing, testing and trying out equipment.....	450
13. Specialized work.....	2,250
TOTAL.....	7,200

In addition, an apprentice in this firm must attend 800 hours of related classroom training, which gives him a total of 8,000 hours of instruction before he becomes a qualified toolmaker.



# APPENDIX E

## Apprenticeship Report Form

REPORT OF APPRENTICE.....CLOCK No.....

COURSE..... PERIOD ENDING..... 19.....

### REPORT ON NIGHT SCHOOL CLASS WORK

Mathematics.....	%	Metallurgy.....	%
Machine Design.....	%		%
Basic Fundamentals of Electricity.....	%		%
D.C. Electricity.....	%		%
A.C. Electricity.....	%		%
Tool Design.....	%		%
Blueprint Reading.....	%		%

Passing grade is 60%.

Any grade below 60% is considered a failure.

Apprentice failing to receive a passing grade must repeat the subject.

Special examinations will only be given in cases of sickness or excused absences from regular term examinations.

### REPORT ON PRACTICAL WORK

Quality of work	Quantity of work	Dependability	Initiative	Attitude	Total
Maximum Marks 30	Maximum Marks 30	Maximum Marks 15	Maximum Marks 15	Maximum Marks 10	Maximum 100

His progress on the course (is ) satisfactory  
(is not)

Remarks.....  
.....  
.....  
.....  
.....  
.....  
.....

.....  
Please sign this copy and return to us Supervisor of Apprentices

Signed.....  
Parent or Guardian

APPRENTICE..... DEPARTMENT..... DATE.....

DETAIL SHOPWORK RECORD MAY BE COMPLETED BY APPRENTICE OR FOREMAN				TO BE FILLED IN BY THE FOREMAN PLACE A RATING VALUE IN THE APPROPRIATE RECTANGLE FOR EACH CHARACTERISTIC					
JOB	FROM	TO	TIME WEEKS	CHARACTERISTICS	MAX. MARK	EXCELLENT	GOOD	FAIR	POOR
				QUALITY OF WORK	30	Range 30-25	25-20	20-15	15-10
						Excellent work Accurate	Expected quality	Produces little scrap	Careless errors
				QUANTITY	30	Range 30-25	25-20	20-15	15-10
				Accurate work Completed		High	Expected quantity	Below average quantity	Slow
				DEPENDABILITY	15	Range 15-13	12-10	9-8	7-5
				Steady worker Reliable		Adapts himself quickly	Proceeds well with work	Must be given detailed super- vision	Slow to adapt himself
				INITIATIVE	15	Range 15-13	12-10	9-8	7-5
						Gives his best	Will follow all instructions	Occasionally needs checking	Frequent checking
				ATTITUDE AND CO-OPERATION	10	Range 10-9	8-7	6-5	4-3
						Exceptionally good in co-operating with Company and fellow employees	Expected co- operation	Co-operates only because it is part of his job	Unco-operative
				Possible total	100				

SIGNATURE OF APPRENTICE..... INSTRUCTOR OR FOREMAN.....  
SIGNATURE OF FOREMAN..... RATING.....

## APPENDIX F

### Provincial Directors of Apprenticeship

NEWFOUNDLAND.....	Mr. W. J. May, Director of Apprenticeship, Department of Labour, St. John's, Newfoundland.
NOVA SCOTIA.....	Mr. R. S. Cochran, Director of Apprenticeship, Department of Labour, Provincial Building, Halifax, N.S.
NEW BRUNSWICK.....	Mr. B. W. Kelly, Director of Apprenticeship, Department of Labour, P.O. Box 1015, Fredericton, N.B.
QUEBEC.....	Mr. E. C. Piedalue, Chairman, Apprenticeship Assistance Committee, 5205 Parthenais St., Montreal, Que.
ONTARIO.....	Mr. D. C. McNeill, Director of Apprenticeship, Department of Labour, 8 York St., Toronto 1, Ontario.
MANITOBA.....	Mr. W. J. Hurd, Director of Apprenticeship, Department of Labour, 442 William Ave., Winnipeg 2, Manitoba.
SASKATCHEWAN.....	Mr. F. H. D. Ellis, Director, Apprenticeship & Tradesmen's Qualification Br., Department of Labour, Government Administration Building, Regina, Sask.
ALBERTA.....	Mr. Jas. P. White, Director of Apprenticeship, Department of Industries and Labour, Administration Bldg., No. 2, Edmonton, Alberta.
BRITISH COLUMBIA.....	Mr. Victor S. Hurrell, Director of Apprenticeship, Department of Labour, 411 Dunsmuir St., Vancouver 3, B.C.











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